



PATENT
0033-0694P

IN RE APPLICATION OF

BEFORE THE BOARD OF APPEALS

Masato SUMIKAWA et al.

Appeal No.:

APPL. NO.: 09/782,180

GROUP: 2872

FILED: February 14, 2001

EXAMINER: DiLinh Nguyen

CONF.: 2465

FOR: SEMICONDUCTOR DEVICE AND METHOD OF
MANUFACTURING THE SAME

Reply Brief Under 37 C.F.R. 1.193(b)(1)

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

January 5, 2004

Sir:

This is a Reply Brief to the Examiner's Answer mailed November 5, 2003.

Grounds of Rejection:

In Section 10 of the Examiner's Answer, pages 3-6, the Examiner repeated the rejection set forth in a final Office Action dated September 19, 2002.

The comments in the Appeal Brief filed May 15, 2003 are still applicable to the rejection set forth and accordingly no further comments have been made to the repeated rejections.

Response to Arguments in th Examiner's Answer:

This Reply Brief is directed only to new points in the Examiner's Answer.

On pages 7-13 of the Examiner's Answer, responses were made to the arguments in the Brief. As these responses raise new points for example, citation of new cases and new arguments as to the content of the references, the following comments are presented. These comments are limited to the points raised in the response to arguments.

Reply to Response to Argument Directed to the Rejection of Claims 1 and 17 as Being Patentable Over Toyosawa (USP 6,337,257):

This response is found on pages 7 and 9 of the Examiner's Answer.

In the last paragraph of page 7, the Examiner asserts that the reference to Toyosawa discloses that the protective tape (noted in column 12, lines 29-31) is a reinforcing tape. Apparently, the Examiner's position is that "relative to the thickness of usual semiconductor chip a protective tape will inherently provide reinforcement (emphasis added)." Here the Examiner is putting down in writing what was discussed at an interview in this application. See the Applicant's Letter Regarding the Interview attached to the Brief.

This new point raised by the Examiner is traversed. Certainly, there is no evidence of what a "usual semiconductor chip" is. Furthermore, mechanically the protective tape and the chip would have to have varying mechanical

features and thicknesses for a protective tape to reinforce a semiconductor chip. This will be referred to later in the discussion of the arguments relative to the reference to Ohuchi.

The issue in the rejection of claims 1 and 17 does not make obvious claims 1 and 7 based on Toyosawa.

The Examiner has again relied on the protective tape in column 12, lines 29-31. In this portion of the reference, the protective tape is attached to the second surface 36. It is also stated in lines 30 and 31 of column 12 that after the second tape is attached to the surface 36 a 1LB process is used. This process is described, for example, in column 2, lines 1 to 4 of the reference.

But what is important is that this protective tape on surface 36 is only used during the stage of manufacturing of the device. And according to what has been claimed in claims 1 and 17, the reinforcement is on the mirror surface. This does not occur or is it suggested from Toyosawa.

For example, a complete reading of this reference shows that the purpose of the invention basically is to remove grinding scratches 35 from the surface 36. This is illustrated, for example, in Figures 3A and 3B, which is the final article of the reference as shown in Figure 1. Clearly the second surface 36 does not have any reinforcement tape on the smooth surface.

In fact, the reference in summarizing what has been done states that by removing the scratches 35 from the surface 36, a reduction in thickness is performed and there is an improvement in mechanical strength. See, for example, column 14 lines 53-67. Clearly, this reference did not recognize the need for a reinforcement device on the second surface 36 after it has been given a mirror surface.

On examining the claimed subject matter in the context of claim 1, there is the structure that “a surface opposite that with said external connection electrode, abraded with a mirror finish and reinforced with a back-surface reinforcing member” which distinguishes over the reference. The surface claimed represents, for example, surface 36 in the reference. But as stated above, there would be no reason to provide a reinforcing member on this surface. The reference did not recognize any need for a reinforcing member on surface 36. See again the discussion *supra*.

Now with respect to claim 17, in the context of this claim there is “a second surface which is a mirror finished surface opposite to said first surface; and a back surface reinforcement member on said second surface which is mirror finished.”

Again, the reference second surface is element 36 and clearly this does not have any reinforcement member. In the reference there is only a tape put on the second surface during the stage of manufacturing. Although the

Examiner recognizes that the article claimed does have a back surface reinforcing member in the final article, the Examiner again relies only on the protective tape with the assertion that this is the reinforcing member claimed.

It appears that the Examiner has not considered the reference as a whole, but as only chosen from the reference only so much as will support her position. This is an improper treatment of a reference. See *In re Wesslau*, 353 F.2d 238, 147 USPQ 391 (CCPA 1951) which states:

“It is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.”

Reply to Response to Arguments Directed to the Rejection of Claims 2 and 4 as Being Patentable Over Toyosawa in View of Ohuchi:

The reasons advanced are found in the first paragraph of page 9 of the Examiner's Answer.

Initially, the Examiner states that the Applicants are arguing limitations from the specification which are not in the claims. The Examiner relies on *In re Van Geuns*, (cited on page 9 of the Answer). A review of this case, also cited in the MPEP, shows that the facts are different from the facts in the present application and, as such, that case is not pertinent.

First, the Examiner did not address what limitations she considered were being argued that were not in the claims. What was argued in the Brief is that the results of the combination must be taken into consideration in arriving at a conclusion of obviousness, which apparently has not been done in arriving at the rejection. Initially, the structure that performs the result is set forth in the claims. Furthermore, it is not necessary that the result be set forth in the claims. This was addressed in the case of *In re Merchant*, 197 USPQ 785, 788 (CCPA 1978) (cited in the MPEP) wherein the Court stated as follows:

“We are aware of no law requiring the unexpected results relied upon for patentability be recited in the claims...Moreover, the “feature” responsible for appellant’s unexpected results is recited in the claims...”

Based on the facts in this application, the *In re Merchant* case is controlling.

In Ohuchi, the protective tape is roughly the same size as the wafer as set forth in column 3, lines 6-8. The protective tape 22 is removed and then the back surface of the wafer is polished, as explained in column 4, lines 1-3.

Also, Ohuchi does not cure the inherent deficiencies of the reference to Toyosawa. Ohuchi does disclose a protective tape used during manufacture. Also, this protective tape 22 can prevent warping during manufacture. See column 2, lines 52-63. But in Ohuchi, the protective tape is removed and then the rear surface is polished. See column 4, lines 1-5 of Ohuchi. Thus, while

Ohuchi does disclose a tape formed of resin, and the particular tape of claim 4, as claim 2 depends on claim 1 and claim 4 depends on claim 2, Ohuchi does not cure the deficiencies of the base reference to Toyosawa because like the base reference, Ohuchi does not have a reinforcement member on the polished surface. Again, it appears that the Examiner has not considered the totality of Ohuchi, as legally required, under *In re Wesslau* as explained above.

Reply to Response to Arguments Directed to the Rejection of Claim 3 as Being Patentable Over Toyosawa in view of Ohuchi and further in view of Horiuchi, et al.:

This response is found on pages 9 and 10 of the Examiner's Answer.

Claim 3/2/1 calls for a specific resin. The Examiner asserts again that in Toyosawa, the protective tape remains on the substrate after manufacture is completed. This was traversed and explained *supra*. For the reasons advanced above, Toyosawa in view of Ohuchi do not show or suggest what is claimed in claim 2.

In answer to the Applicants arguments regarding the improved result, the Examiner again relies on *In re Van Geuns*. This case was discussed above and the arguments above are applicable here especially considering the Doctrine set forth in *In re Merchant* (cited and explained above).

**Reply to Respons to Arguments Directed to th R jection of Claims 5-8
and 18 as Being Patentable Over Tamaki, et al. (USP 6,136,668):**

Tamaki et al. does show an adhesive 31 for securing a glass plate 21, which is a reinforcing plate. Column 6, line 66 to column 7, line 6. Certainly, if the adhesive in Tamaki, et al. was a reinforcing member, which it is not, there would be not need to have a reinforcing plate 21.

In the Reply to Arguments, the Examiner refers to a patterned resist 33a/3b[sic 33b] on the back surface of the semiconductor wafer, as shown in column 7, lines 1-6 and 30. But this patterned resist is only for protection and is removed from the back surface of the semiconductor wafer. Furthermore, there is no evidence that this patterned resist is suggestive of the application of resin on the surface abraded. This is in claim 5. Also, in claim 18 there is a step of applying resin on the mirror finish surface.

Furthermore, it is not understood why the Examiner refers to 33a and 33b without explanation.

As was explained in the Brief, this reference does show a reinforcement formed of metal layer on a ground surface but this is not what has been claimed in claims 5 and 18, which were separately grouped.

Also of interest, the admitted prior art in this reference does show a semiconductor device 1 with a metal layer 5 as reinforcement. But this is not what is claimed.

The Examiner stated that she did not mention element 21. This is indicia that the Examiner has not considered the totality of the reference. See *In re Wesslau* cited and explained above.

Reply to Response to Arguments Directed to the Rejection of Claims 9-12 as Being Patentable Over Tamaki et al in view of Sakaguchi:

Claims 9-12 were grouped together. Claim 9, as was stated in the Brief, is dependent on claim 5.

One of the reasons set forth in the Brief was that the claims in the first instance were considered patentable at least for the same reasons as their base or intervening claims.

Thus, the real issue here, does Sakaguchi cure the deficiencies of a rejection based on Tamaki, et al.? The Examiner apparently relies on the fact that Sakaguchi shows the particular resin. But, even assuming *arguendo* that Sakaguchi shows the resin, if the combination of the references were made, it is apparently the Examiner's position that the resin in the secondary reference to Sakaguchi would be used for the adhesive 31 in Tamaki, et al. But as explained in the discussion of Tamaki, et al. in the reply to the rejection of

claim 5, the adhesive is not a reinforcing member let alone a reinforcement on the mirror finish surface even in claim 9/5.

Also, with respect to the results, the comments above regarding *In re Merchant*, it is submitted also applies here.

Reply to Response to Argument Directed to the Rejection of Claims 13-16 as Being Patentable Over Tamaki et al. in view of Takahashi:

In this response, the Examiner states "the Applicant has failed to consider as a whole the prior art teachings disclosed by the combining of the references". See page 13, lines 1 and 2.

The Applicant did consider the teachings of both Tamaki in view of Takahashi contrary to the assertion made in the Answer. As explained in the rejection by the Examiner of base claim 5, the Examiner relied on the adhesive 31 in Tamaki which holds the plate 21 which is made of glass. The adhesive is not the reinforcing member claimed as explained in the discussion of Tamaki regarding the rejection of base claim 5. Even though the secondary reference to Takahashi does show a spun resin layer, the combination of these two references would at best only indicate that the adhesive 31 of Tamaki was a spun resin layer. In summary, Takahashi does not cure the inherent deficiencies of a rejection based on Tamaki for claim 5/13.

CONCLUSION:

For the reasons set forth in the Brief and in the Reply Brief, it is requested that the Examiner's rejection be reversed.

Respectfully submitted,

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